

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 :

**C07K 16/28, G01N 33/53, A61K 39/395****A3**

(11) International Publication Number:

**WO 00/05265**

(43) International Publication Date:

3 February 2000 (03.02.00)

(21) International Application Number: PCT/US99/16452

(22) International Filing Date: 22 July 1999 (22.07.99)

(30) Priority Data:

09/121,781

23 July 1998 (23.07.98)

US

(63) Related by Continuation (CON) or Continuation-in-Part (CIP) to Earlier Application

US

Filed on

09/121,781 (CIP)

23 July 1998 (23.07.98)

(71) Applicant (for all designated States except US): LEUKOSITE, INC. [US/US]; 215 First Street, Cambridge, MA 02142 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): LaROSA, Gregory, J. [US/US]; 16 Alameda Road, West Roxbury, MA 02132 (US). HORVATH, Christopher [US/US]; 209 Plain street, Taunton, MA 02780 (US). NEWMAN, Walter [US/US]; 3 Durham Street, No. 3, Boston, MA 02115 (US).

(74) Agent: WENDLER, Helen, E.; Hamilton, Brook, Smith &amp; Reynolds, P.C., Two Militia Drive, Lexington, MA 02421 (US).

(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

(88) Date of publication of the international search report:

27 April 2000 (27.04.00)

(54) Title: ANTI-CRR2 ANTIBODIES AND METHODS OF USE THEREFOR

(57) Abstract

The present invention relates to an antibody or functional fragment thereof which binds to a mammalian (e.g., human) CC-chemokine receptor (2) (CCR2) or a portion of the receptor and blocks binding of a ligand to the receptor. The invention further relates to a method of inhibiting the interaction of a cell bearing mammalian CCR2 with a ligand thereof, and to use of the antibodies and fragments in therapeutic, prophylactic and diagnostic methods.

## INTERNATIONAL SEARCH REPORT

International Application No

PC/JS 99/16452

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K16/28 G01N33/53 A61K39/395

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>FRADE J M R ET AL: "The amino-terminal domain of the CCR2 chemokine receptor acts a coreceptor for HIV-1 infection." JOURNAL OF CLINICAL INVESTIGATION, (1997 AUG 1) 100 (3) 497-502. , XP002099012 abstract</p> <p>page 498, column 1, paragraph 6</p> <p>page 498, column 2, paragraph 4</p> <p>page 499, column 2, paragraph 3</p> <p>figures 3,4</p>	1-54
Y	---	15,21
X	<p>WO 97 31949 A (PHARMACIA &amp; UPJOHN AB ;CONSEJO SUPERIOR INVESTIGACION (ES); LIND P) 4 September 1997 (1997-09-04)</p> <p>page 5, line 18 -page 11, line 8</p> <p>examples 3,4</p>	1-54
Y	---	15,21
	--- -/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

\*A\* document defining the general state of the art which is not considered to be of particular relevance

\*E\* earlier document but published on or after the international filing date

\*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\* document referring to an oral disclosure, use, exhibition or other means

\*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

28 December 1999

Date of mailing of the international search report

21.01.00

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
 NL - 2280 HV Rijswijk  
 Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
 Fax: (+31-70) 340-3018

Authorized officer

Muller-Thomalla, K

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/16452

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FRADE J M ET AL: "Characterization of the CCR2 chemokine receptor: functional CCR2 receptor expression in B cells." JOURNAL OF IMMUNOLOGY, (1997 DEC 1) 159 (11) 5576-84. , XP002126697 abstract page 5577, column 1, paragraph 3 -page 5580, column 2, paragraph 2 ---	1-19, 26-32, 41-51
X	WO 95 19436 A (CHARO ISRAEL ;COUGHLIN SHAUN (US); UNIV CALIFORNIA (US)) 20 July 1995 (1995-07-20) page 5, line 13-31 page 7, line 15 -page 9, line 8 claims 1-14 -----	1-19, 26-32, 41-51
Y		15,21

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 99/16452

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claim Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claim Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

International Application No. PCT/US 99/16452

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 14-25,30-32,39-44 and 52-54 are directed to a method of treatment of the human/animal body and claims 26,27 and 33-38 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.